

## CHAPTER 11 WATER QUALITY STANDARDS

|              |   |
|--------------|---|
| <b>Secs.</b> |   |
| 1100         | Purpose and Scope                                   |
| 1101         | Surface Waters                                      |
| 1102         | Antidegradation Policy                              |
| 1103         | Wetlands  |
| 1104         | Standards   |
| 1105         | Implementation and Applicability                    |
| 1106         | Site Specific Standards                             |
| 1107 -1149   | [Reserved]  |
| 1150         | Ground Water  |
| 1151         | Applicability of Ground Water Standards             |
| 1152         | Beneficial Use Classes for Ground Water             |
| 1153         | [Reserved]  |
| 1154         | Ground Water Classification                         |
| 1155         | Ground Water Standards                              |
| 1156         | [Reserved]  |
| 1157         | Ground Water Monitoring for Potential Contamination |
| 1158         | Enforcement   |
| 1199         | Definition  |

### 1100 PURPOSE AND SCOPE

- 1100.1 This chapter shall establish the revised Water Quality Standards for the waters of the District of Columbia, as authorized under §5 of the D.C. Law 5-188, the "Water Pollution Control Act of 1984."

**AUTHORITY:** Unless otherwise noted, the authority for this chapter is §5 of the Water Pollution Control Act of 1984, D.C. Law 5-188, D.C. Code §6-924 (1988 Repl. Vol.); Mayor's Order 85-152, dated September 12, 1985.

**SOURCE:** Final Rulemaking published at 41 DCR 1075 (March 4, 1994).

### 1101 SURFACE WATERS

- 1101.1 For the purposes of water quality standards, the surface waters of the District shall be classified on the basis of their current and future uses to which the waters will be restored. The categories of beneficial uses for the surface waters of the District shall be as follows:

| <b><u>Categories of uses which<br/>determine water quality standards</u></b>   | <b><u>Classes<br/>of Water</u></b> |
|--|------------------------------------|
| Primary contact recreation .....   | A                                  |
| Secondary contact recreation and aesthetic<br>enjoyment .....                  | B                                  |
| Protection & propagation of fish, shellfish<br>and wildlife .....              | C                                  |
| Protection of human health related<br>to consumption of fish & shellfish ..... | D                                  |
| Navigation .....   | E                                  |

1101.2 The surface waters of the District shall be designated for beneficial use classes according to the categories delineated in §1101.1, as follows:

### CLASSIFICATION OF DISTRICT'S WATERS

| Surface waters<br>of the District                          | USE CLASSES |                |
|--|-------------|----------------|
|  | Current Use | Designated Use |
| Potomac River  | B, C, D, E  | A, B, C, D, E  |
| Potomac River<br>tributaries<br>(except as listed below)   | B, C, D     | A, B, C, D     |
| Battery Kemble<br>Creek                                    | B, C, D     | A, B, C, D     |
| C & O Canal  | B, C, D, E  | A, B, C, D, E  |
| Rock Creek and<br>its tributaries                          | B, C, D, E  | A, B, C, D, E  |
| Tidal Basin  | B, C, D, E  | A, B, C, D, E  |
| Washington Ship<br>Channel                                 | B, C, D, E  | A, B, C, D, E  |
| Oxon Run   | B, C, D     | A, B, C, D     |
| Anacostia River  | B, C, D, E  | A, B, C, D, E  |
| Anacostia River<br>tributaries<br>(except as listed below) | B, C, D     | A, B, C, D     |
| Hickey Run   | B, C, D     | B, C, D        |
| Watts Branch   | B, C, D     | B, C, D        |
| Wetland  | C, D        | C, D           |

SOURCE: Final Rulemaking published at 41 DCR 1075 (March 4, 1994).

**1102 ANTIDegradation Policy**

**1102.1 TIER I:** Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

**1102.2 TIER II:** If the water quality of the surface waters of the District exceeds the water quality criteria necessary to sustain the existing uses, those waters shall be maintained at that quality. The water quality will not be allowed to degrade unless the District finds after full satisfaction of the intergovernmental coordination and public participation provisions of the District's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing degradation of lower water quality, the District shall assure water quality adequate to protect existing uses fully. Further, the District shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost effective and reasonable best management practices for nonpoint source control.

**1102.3 TIER III:** Where High Quality Waters constitute an outstanding National resource, such as waters of the National and District parks and wildlife refuges and waters of exceptional recreational or ecological significance, those waters shall be designated Outstanding National Resource Waters (ONRW) and the water quality in the ONRW shall be maintained, protected and designated as follows:

- (a) New point and nonpoint source discharges, treated or otherwise, shall be prohibited in these segments;
- (b) Increases in loadings or new pollutants from existing point and nonpoint source discharges shall be prohibited in these segments;
- (c) Short-term degradation of the water quality shall be allowed after opportunity for public participation and addressing their comments if any. However, all practical means of minimizing the degradation shall be implemented; and
- (d) Designation of ONRWs shall be adopted after full satisfaction of the intergovernmental coordination and public participation provisions of the District's continuing planning process.

**1102.4 SPECIAL WATERS OF THE DISTRICT OF COLUMBIA (SWDC):** Any segment or segments of the surface waters of the District which are of water quality better than needed for the current use or have scenic or aesthetic importance shall be designated as Special Waters of the District of Columbia (SWDC). The water quality in SWDC designated segments of the District's surface waters shall be maintained at or above the current level by implementing the following:

- (a) Existing nonpoint source discharges, storm water discharges and storm sewer discharges to SWDC segments shall be controlled through implementation of best management practices and regulatory programs;



- (b) Construction or development projects, such as roads, bridges, and bank stabilization of the streams in which a SWDC designated segment is located, which may lead to pollution of the water shall be permitted on a case-by-case basis to insure that there are no long term adverse water quality effects and no impairment of the designated uses of the segment occurs; and
- (c) Short term degradation of water quality in an SWDC segment due to construction projects may be permitted; Provided, that prior notice is given to the public, as well as other local and federal government agencies; and Provided, further that their concerns are properly addressed.

1102.5 Effective March 4, 1994, the following waters of the District shall be designated as SWDC segments:

- (a) Rock Creek and its tributaries; and
- (b) Battery Kemble Creek and its tributaries.

SOURCE: Final Rulemaking published at 41 DCR 1075, 1077 (March 4, 1994).

### 1103 WETLANDS

- 1103.1 In a wetland, the numerical criteria shall be applied to the column of water above the wetland in accordance with the designated use.
- 1103.2 Wetlands with rooted vascular aquatic vegetation, except those specifically constructed or created as waste water treatment devices and except as provided in D. C. Code §§6-923(d) and 6-926(a)(3), shall be protected from significant adverse hydrologic modifications, excessive sedimentation, deposition of toxic substances in toxic amounts, nutrient imbalances, and other adverse anthropogenic impacts.

SOURCE: Final Rulemaking published at 41 DCR 1075, 1078 (March 4, 1994).

### 1104 STANDARDS

- 1104.1 The surface waters of the District shall be free from substances attributable to point or nonpoint sources discharged in amounts that do any one of the following:
- (a) Settle to form objectionable deposits;
  - (b) Float as debris, scum, oil or other matter to form nuisances;
  - (c) Produce objectionable odor, color, taste or turbidity;
  - (d) Cause injury to, are toxic to or produce adverse physiological or behavioral changes in humans, plants or animals;

- (e) Produce undesirable aquatic life or result in the dominance of nuisance species; and
  - (f) Impair the biological community which naturally occurs in the waters or depends on the waters for their survival and propagation.
- 1104.2 For the waters of the District with multiple designated uses, the most stringent standards or criteria shall govern.
- 1104.3 Class A waters shall be free of discharges of untreated sewage, litter and unmarked, submerged or partially submerged, man-made structures which would constitute a hazard to the users.
- 1104.4 The aesthetic qualities of Class B waters shall be maintained. Construction, placement or mooring of facilities not primarily and directly water oriented shall be prohibited in, on or over Class B waters unless the following occurs:
  - (a) The facility is for the general public benefit and service; and
  - (b) Land based alternatives are not available.
- 1104.5 Class E waters shall be free of unmarked submerged or partially submerged man-made objects which pose a hazard to users of these waters.
- 1104.6 Unless otherwise stated, the numeric criteria which shall be met to attain and maintain designated uses, are as follows (Tables 1 through 3):

1104.6 (Continued)

Table 1

| Constituent                                   | Criteria for Classes |       |      |
|---|----------------------|-------|------|
|   | A                    | B     | C    |
| Bacteriological(No./100 mL)                   |                      |       |      |
| Fecal Coliform                                | 200                  | 1,000 |      |
| (Maximum 30 day geometric mean for 5 samples) |                      |       |      |
| Physical                                      |                      |       |      |
| Dissolved oxygen (mg/L)                       |                      |       |      |
| Minimum daily average                         |                      |       | 5.0  |
| (3 samples per 24 hours once per 8 hour)      |                      |       |      |
| One hour minimum                              |                      |       |      |
| March through June                            |                      |       | 5.0  |
| July through February                         |                      |       | 4.0  |
| Temperature (°C)                              |                      |       |      |
| Maximum                                       |                      |       | 32.2 |
| Maximum change above ambient                  |                      |       | 2.8  |
| pH  |                      |       |      |
| Greater than                                  | 6.0                  | 6.0   | 6.0  |
| and less than                                 | 8.5                  | 8.5   | 8.5  |
| Turbidity increase above ambient (NTU)        | 20                   | 20    | 20   |
| Total dissolved gases (maximum % saturation)  |                      |       | 110  |
| Hydrogen sulfide (maximum (µg/L)              |                      |       | 2.0  |
| Oil & grease (mg/L)                           |                      |       | 10.0 |

1104.6 (Continued)

Table 2

| Constituent | Criteria for Classes |     |
|-------------|----------------------|-----|
|             | C                    | D   |
|             | CCC                  | CMC |

**MAXIMUM VALUE FOR CLASS C(CCC; FOUR DAY AVERAGE), CLASS C(CMC; ONE HOUR AVERAGE AND) CLASS D (30 DAY AVERAGE)**

Trace metals and inorganics in mg/L, except where stated otherwise (see Notes below)

|                                 |          |          |                      |
|---------------------------------|----------|----------|----------------------|
| Ammonia, total                  | [Note 6] | [Note 7] |                      |
| Antimony, dissolved             |          |          | 4.3                  |
| Arsenic, dissolved              | 0.19     | 0.36     | 0.00014 <sup>c</sup> |
| Cadmium, dissolved              | [I]      | [IA]     |                      |
| Chlorine, total residual        | 0.011    | 0.019    |                      |
| Chromium, hexavalent, dissolved | 0.011    | 0.016    |                      |
| Chromium, trivalent, dissolved  | [II]     | [IIA]    |                      |
| Copper, dissolved               | [III]    | [IIIA]   |                      |
| Cyanide, free                   | 0.0052   | 0.022    | 220.0                |
| Iron, dissolved                 | 1.0      |          |                      |
| Lead, dissolved                 | [IV]     | [IVA]    |                      |
| Mercury, total recoverable      | 0.000012 | 0.0024   | 0.00015              |
| Nickel, dissolved               | [V]      | [VA]     | 4.6                  |
| Selenium, total recoverable     | 0.005    | 0.02     |                      |
| Silver, dissolved               |          | [VI]     | 65.0                 |
| Thallium, dissolved             |          |          | 0.0063               |
| Zinc, dissolved                 | [VII]    | [VIIA]   |                      |

## Notes:

[Note 1] Superscript<sup>c</sup> means the criterion is based on carcinogenicity (10<sup>-6</sup> risk).

[Note 2] CCC and CMC are defined in section 1199.

[Note 3] Human Health Criteria for metals will be based on Total Recoverable metals.

[Note 4] The formulas for calculating the concentrations of substances indicated above are as follows:

[I] The numerical CCC criterion for cadmium in µg/L shall be given by:

$$e^{(0.7852[\ln(\text{hardness})]-3.490)}$$



1104.6 (Continued)

[IA] The numerical CMC criterion for cadmium in  $\mu\text{g/L}$  shall be given by:

$$e^{(1.128[\ln(\text{hardness})]-3.828)}$$

[II] The numerical CCC criterion for trivalent chromium in  $\mu\text{g/L}$  shall be given by:

$$e^{(0.8190[\ln(\text{hardness})]+1.561)}$$

[IIA] The numerical CMC criterion for trivalent chromium in  $\mu\text{g/L}$  shall be given by:

$$e^{(0.8190[\ln(\text{hardness})]+3.688)}$$

[III] The numerical CCC criterion for copper in  $\mu\text{g/L}$  shall be given by:

$$e^{(0.8545[\ln(\text{hardness})]-1.465)}$$

[IIIA] The numerical CMC criterion for copper in  $\mu\text{g/L}$  shall be given by:

$$e^{(0.9422[\ln(\text{hardness})]-1.464)}$$

[IV] The numerical CCC criterion for lead in  $\mu\text{g/L}$  shall be given by:

$$e^{(1.2730[\ln(\text{hardness})]-4.705)}$$

[IVA] The numerical CMC criterion for lead in  $\mu\text{g/L}$  shall be given by:

$$e^{(1.2730[\ln(\text{hardness})]-1.460)}$$

[V] The numerical CCC criterion for nickel in  $\mu\text{g/L}$  shall be given by:

$$e^{(0.8460[\ln(\text{hardness})]+1.1645)}$$

[VA] The numerical CMC criterion for nickel in  $\mu\text{g/L}$  shall be given by:

$$e^{(0.8460[\ln(\text{hardness})]+3.3612)}$$

[VI] The numerical CMC criterion for silver in  $\mu\text{g/L}$  shall be given by:

$$e^{(1.72[\ln(\text{hardness})]-6.52)}$$

[VII] The numerical CCC criterion for zinc in  $\mu\text{g/L}$  shall be given by:

$$e^{(0.8473[\ln(\text{hardness})]+0.7614)}$$

[VIIA] The numerical CMC criterion for zinc in  $\mu\text{g/L}$  shall be given by:

$$e^{(0.8473[\ln(\text{hardness})]+0.8604)}$$



## 1104.6 (Continued)

[Note 5] Hardness in the equations (I) through (VIIA) in [Note 4] above shall be measured as mg/L of  $\text{CaCO}_3$ . The minimum hardness allowed for use in those equations shall not be less than twenty-five (25) mg/L, as  $\text{CaCO}_3$ , even if the actual ambient hardness is less than twenty-five (25) mg/L as  $\text{CaCO}_3$ . The maximum hardness value allowed for use in those equations shall not exceed four hundred (400) mg/L, as  $\text{CaCO}_3$ , even if the actual ambient hardness is greater than four hundred (400) mg/L as  $\text{CaCO}_3$ .

[Note 6] The CCC criterion for ammonia shall be: (i) the thirty (30) day average concentration for total ammonia, computed for a design flow specified in §1105.3; and (ii) shall account for the influence of the pH and temperature (in degrees centigrade) as shown in the following table (to be linearly extrapolated for values of pH and temperature not in the table). Exceeding of the total ammonia concentration for given pH and temperature shall be considered as the violation of CCC criteria for ammonia.

Total ammonia (in mg/L as ammonia) for various pH and temperatures for CCC:

| pH \ °C | 0    | 5    | 10   | 15   | 20   | 25   | 30   |
|---------|------|------|------|------|------|------|------|
| 6.50    | 3.02 | 2.82 | 2.66 | 2.50 | 2.53 | 1.78 | 1.27 |
| 6.75    | 3.02 | 2.82 | 2.66 | 2.59 | 2.53 | 1.78 | 1.27 |
| 7.00    | 3.02 | 2.82 | 2.66 | 2.59 | 2.53 | 1.78 | 1.27 |
| 7.25    | 3.02 | 2.82 | 2.66 | 2.59 | 2.53 | 1.78 | 1.27 |
| 7.50    | 3.02 | 2.82 | 2.66 | 2.59 | 2.53 | 1.78 | 1.27 |
| 7.75    | 2.80 | 2.60 | 2.47 | 2.38 | 2.30 | 1.65 | 1.18 |
| 8.00    | 1.82 | 1.71 | 1.62 | 1.57 | 1.55 | 1.10 | 0.79 |
| 8.25    | 1.03 | 0.97 | 0.93 | 0.91 | 0.90 | 0.65 | 0.47 |
| 8.50    | 0.58 | 0.55 | 0.53 | 0.53 | 0.53 | 0.39 | 0.29 |

[Note 7] The CMC criterion for total ammonia shall be: (i) one hour average concentration for total ammonia, computed for a design flow specified in §1105.3; and (ii) shall account for the influence of the pH and temperature (in degrees centigrade) as shown in the following table (to be linearly extrapolated for values of pH and temperature not in the table). Exceedance of the total ammonia concentration for given pH and temperature shall be considered as the violation of CMC criteria for ammonia.

Total ammonia (in mg/L as ammonia) for various pH & temperatures for CMC:

## 1104.6 (Continued)

| pH \ °C | 0    | 5    | 10   | 15   | 20   | 25   | 30   |
|---------|------|------|------|------|------|------|------|
| 6.50    | 35   | 33   | 31   | 30   | 29   | 29   | 20   |
| 6.75    | 32   | 30   | 28   | 27   | 27   | 26   | 18.6 |
| 7.00    | 28   | 26   | 25   | 24   | 23   | 23   | 16.4 |
| 7.25    | 23   | 22   | 20   | 19.7 | 19.2 | 19   | 13.5 |
| 7.50    | 17.4 | 16.3 | 15.5 | 14.9 | 14.6 | 14.5 | 10.3 |
| 7.75    | 12.2 | 11.4 | 10.9 | 10.5 | 10.3 | 10.2 | 7.3  |
| 8.00    | 8.0  | 7.5  | 7.1  | 6.9  | 6.8  | 6.8  | 4.9  |
| 8.25    | 4.5  | 4.2  | 4.1  | 4.0  | 3.9  | 4.0  | 2.9  |
| 8.50    | 2.6  | 2.4  | 2.3  | 2.3  | 2.3  | 2.4  | 1.81 |

Table 3

| Constituent (Chemical<br>Abstracts Service<br>Registry Number) | Criteria for Classes |           |
|--|----------------------|-----------|
|  | C                    | D         |
|  | CCC                  | CMC       |
| Organics (in µg/L):  |                      |           |
| Acrolein (107028)  | 10.0                 | 780       |
| Acrylonitrile (107131)   | 700.0                | 0.66,c    |
| Aldrin (309002)  | 0.4                  | 3.0       |
| Benzene (71432)  | 1000                 | 71.0,c    |
| Carbon tetrachloride (56235)                                   | 1000                 | 4.4,c     |
| Chlordane (57749)  | 0.0043               | 2.4       |
| Chlorinated benzenes (except Di)                               | 25.0                 | 0.00059,c |
| Chlorobenzene (108907)   |                      | 21,000    |
| 1,2-Dichlorobenzene<br>(95501)                                 | 200                  | 17,000    |
| 1,3-Dichlorobenzene<br>(541731)                                | 200                  | 2,600     |
| 1,4-Dichlorobenzene<br>(106467)                                | 200                  | 2,600     |
| Hexachlorobenzene<br>(118741)                                  |                      | 0.00077,c |
| Chlorinated ethanes  | 50                   |           |
| 1,2-Dichloroethane<br>(107062)                                 |                      | 99.0,c    |

1104.6 (Continued)

**Table 3** (Continued)

| Constituent (Chemical<br>Abstracts Service<br>Registry Number) | Criteria for Classes |               |
|--|----------------------|---------------|
|  | C                    | D             |
|  | CCC                  | CMC           |
| Organics (in µg/L): (Continued)                                |                      |               |
| Chlorinated ethanes (Continued)                                |                      |               |
| 1,1,2,2-Tetrachloroethane<br>(79345)                           |                      | 11.0,c        |
| 1,1,1-Trichloroethane<br>(71556)                               |                      |               |
| 1,1,2-Trichloroethane<br>(79005)                               |                      | 42.0,c        |
| Hexachloroethane (67721)                                       |                      | 8.9,c         |
| Chlorinated naphthalene  |                      |               |
| 2-Chloronaphthalene<br>(91587)                                 | 200                  |               |
| Chlorinated phenols  |                      |               |
| 2-chlorophenol<br>(95578)                                      | 100                  |               |
| 2,4-dichlorophenol<br>(120832)                                 | 200                  | 790.0         |
| 2,4,6-trichlorophenol<br>(88062)                               |                      | 6.5,c         |
| Pentachlorophenol (87865)                                      | [IX]                 | [IXA] 8.2,c   |
| Chloroalkyl ethers   | 1000                 |               |
| Bis(2-Chloroethyl)ether<br>(111444)                            |                      | 1.4,c         |
| Bis(2-Chloroisopropyl)<br>ether (108601)                       |                      | 170,000       |
| DDT or isomers (50293,72559<br>or 72548)                       | 0.001                | 1.1 0.00059,c |
| 3,3-Dichlorobenzidine (91941)                                  | 10                   | 0.077,c       |
| Dichloroethylenes  | 1000                 |               |
| 1,1-Dichloroethylene<br>(75354)                                |                      | 3.2,c         |
| 1,2-Trans-Dichloro-<br>ethylene (156605)                       |                      |               |
| 1,2-Dichloropropane (78875)                                    | 2000                 | 39.0          |
| Dichloropropenes   | 400                  |               |
| 1,3-Dichloropropylene (542756)                                 |                      | 1,700         |
| Dieldrin-60571   | 0.0019               | 2.5 0.00014,c |



1104.6 (Continued)

Table 3 (Continued)

| Constituent (Chemical<br>Abstracts Service<br>Registry Number) | Criteria for Classes |      |               |
|--|----------------------|------|---------------|
|  | C                    |      | D             |
|  | CCC                  | CMC  |               |
| Organics (in µg/L): (Continued)                                |                      |      |               |
| 2,4-Dimethylphenol (105679)                                    | 200                  |      |               |
| 2,4-Dinitrotoluene (121142)                                    | 33                   |      | 9.1,c         |
| Dioxin(2,3,7,8-TCDD) (1746016)                                 |                      |      | 0.000000014,c |
| 1,2-Diphenylhydrazine (122667)                                 | 30                   |      | 0.54,c        |
| Endosulfan (959988<br>or 33213659)                             | 0.056                | 0.22 | 2.0           |
| Endosulfan sulfate (1031078)                                   |                      |      | 2.0           |
| Endrin (72208)   | 0.0023               | 0.18 | 0.81          |
| Endrin aldehyde (7421934)                                      |                      |      | 0.81          |
| Ethylbenzene (100414)  | 40                   |      | 29,000        |
| Halomethanes   | 1000                 |      |               |
| Bromoform (75252)  |                      |      | 360.0,c       |
| Chloroform (67663)   | 3000                 |      | 470.0,c       |
| Methyl bromide (74839)   |                      |      | 4,000         |
| Methyl chloride (74873)  |                      |      |               |
| Methylene chloride (75092)                                     |                      |      | 1,600,c       |
| Chlorodibromomethane (124481)                                  |                      |      | 34.0,c        |
| Dichlorobromomethane (75274)                                   |                      |      | 22.0,c        |
| Heptachlor (76448)   | 0.0038               | 0.52 | 0.00021,c     |
| Heptachlor epoxide (1024573)                                   | 0.0038               | 0.52 | 0.00011,c     |
| Hexachlorobutadiene (87683)                                    | 10                   |      | 50.0,c        |
| Hexachlorocyclohexane  |                      |      |               |
| Alpha-BHC (319846)   |                      |      | 0.013,c       |
| Beta-BHC (319857)  |                      |      | 0.046,c       |
| Gamma-BHC (58899)  | 0.08                 | 2.0  | 0.063,c       |
| Hexachloro-<br>cyclopentadiene (77474)                         | 0.5                  |      | 17,000        |
| Isophorone (78591)   | 1000                 |      | 600.0,c       |
| Naphthalene (91203)  | 600                  |      |               |
| Nitrobenzene (98953)   | 1000                 |      | 1,900         |
| Nitrophenols   | 20                   |      |               |
| 2-Methyl-4,6-<br>Dinitrophenol (534521)                        |                      |      | 765           |
| 2,4-Dinitrophenol (51285)                                      |                      |      | 14,000        |
| Nitrosamines   | 600                  |      |               |
| N-Nitrosodi-<br>methylamine (62759)                            |                      |      | 8.1,c         |



1104.6 (Continued)

Table 3 (Continued)

| Constituent (Chemical<br>Abstracts Service<br>Registry Number) | Criteria for Classes |            |
|--|----------------------|------------|
|  | C                    | D          |
|  | CCC                  | CMC        |
| Organics (in µg/L): (Continued)                                |                      |            |
| Nitrosamines (Continued)                                       |                      |            |
| N-Nitrosodi-<br>n-Propylamine (621647)                         |                      |            |
| N-Nitrosodi-<br>phenylamine (86306)                            |                      | 16.0,c     |
| Phenol (108952)  |                      | 4,600,000  |
| Phthalate esters   | 100                  |            |
| Bis(2-Ethylhexyl)-<br>phthalate (117817)                       |                      | 5.9,c      |
| Butylbenzyl phthalate<br>(85687)                               |                      |            |
| Diethyl phthalate<br>(84662)                                   |                      | 120,000    |
| Dimethyl phthalate<br>(131113)                                 |                      | 2,900,000  |
| Di-n-Butyl phthalate<br>(84742)                                |                      | 12,000     |
| Polychlorinated biphenyls                                      | 0.014                | 0.000045,c |
| Polynuclear aromatic<br>hydrocarbons                           |                      |            |
| Acenaphthene (83329)   | 50                   |            |
| Acenaphthylene (208968)  |                      |            |
| Anthracene (120127)  |                      | 110,000    |
| Benzidine (92875)  | 250                  | 0.00054,c  |
| Benzo(a)Anthracene<br>(56553)                                  |                      | 0.031,c    |
| Benzo(a)Pyrene (50328)   |                      | 0.031,c    |
| Benzo(b)Fluoranthene<br>(205992)                               |                      | 0.031,c    |
| Benzo(k)Fluoranthene<br>(207089)                               |                      | 0.031,c    |
| Chrysene (218019)  |                      | 0.031,c    |
| Dibenzo(a,h)-<br>Anthracene (53703)                            |                      | 0.031,c    |
| Fluoranthene (206440)  | 400                  | 370.0      |
| Fluorene (86737)   |                      | 14,000     |
| Indeno(1,2,3-cd)-<br>Pyrene (193395)                           |                      | 0.031,c    |

1104.6 (Continued)

Table 3 (Continued)

| Constituent (Chemical<br>Abstracts Service<br>Registry Number) | Criteria for Classes |                |
|--|----------------------|----------------|
|  | C                    | D              |
|  | CCC                  | CMC            |
| Organics (in µg/L): (Continued)                                |                      |                |
| Polynuclear aromatic (Continued)                               |                      |                |
| Phenanthrene (85018)   |                      |                |
| Pyrene (129000)  |                      | 11,000         |
| Tetrachloroethylene (127184)                                   | 800                  | 8.85,c         |
| Toluene (108883)   | 600                  | 200,000        |
| Toxaphene (8001352)  | 0.0002               | 0.73 0.00075,c |
| Trichloroethylene (79016)                                      | 1000                 | 81.0,c         |
| Vinyl chloride (75014)   |                      | 525.0,c        |

Notes:

[VIII] ,c After the Human Health Criteria numeric value means that the criteria is based on carcinogenicity (10<sup>-6</sup>) risk level.

[IX] The numerical CCC criterion for pentachlorophenol in µg/L shall be given by:

$$e^{(1.005(\text{pH}) - 5.290)}$$

[IXA] The numerical CMC criterion for pentachlorophenol in µg/L shall be given by:

$$e^{(1.005(\text{pH}) - 4.830)}$$

SOURCE: Final Rulemaking published at 41 DCR 1075, 1077 (March 4, 1994).

## 1105 IMPLEMENTATION AND APPLICABILITY

1105.1 The discharge of pollutants in quantities that prevent the attainment of, or violates the surface water quality standards shall be allowed temporarily only if the discharger can justify every three (3) years through a public hearing process that at least one (1) of the following conditions exist:

- (a) Irretrievable and irreversible conditions which prevent the attainment of the standards;
- (b) The application of technology sufficient to attain the standards is more stringent than that required by §§301 and 306 of the federal Clean Water Act, or the application of the technology would result in substantial and widespread adverse economic and social impacts; or
- (c) One or more of the reasons specified in 40 CFR §131.10 (g).

- 1105.2 Variance from meeting water quality standards shall not be granted if the variance will result in loss of protection for an existing use.
- 1105.3 The design flow to be used for establishing permit limitations for discharges to the District waters shall be as follows:
- (a) The numerical criteria for Classes A, B, and C(CCC) as delineated in §1104.6, shall not apply at flows less than the average seven (7) day low flow which has a probability of occurrence of once in ten (10) years;
  - (b) The numerical criteria for Class C(CMC), as delineated in §1104.6 shall not apply at flows less than the average one day low flow which has a probability of occurrence of once in ten (10) years; and
  - (c) For carcinogenic pollutants under Class D as delineated in §1104.6 the design flow shall be the harmonic mean flow, and for noncarcinogenic pollutants under Class D the design flow shall be the average thirty (30) day low flow which has the probability of occurrence of once in five (5) years. The categorization of pollutants to be carcinogenic or non-carcinogenic is shown under the column of Human Health Criteria.
- 1105.4 The numerical criteria for total residual chlorine, fecal coliform, dissolved oxygen, turbidity and total ammonia shall not apply during and for a period of twenty-four (24) hours following high flow conditions, that occur due to local storm events, as described in this subsection:
- (a) For the Potomac River the following shall be considered a high flow:
    - (1) A flow which may result due to a rainfall with an average intensity greater than two-tenths of an inch (0.2 in.) per hour for a period of one (1) hour in the portion of the District of Columbia contributory to the Potomac River; or
    - (2) A flow equivalent to a three hundred percent (300%) increase in flow during a twenty-four (24) hour period;
  - (b) For the Anacostia River the following shall be considered a high flow:
    - (1) A flow which may result due to a rainfall with an average intensity greater than two-tenths of an inch (0.2 in.) per hour for a period of one (1) hour in the portion of the District of Columbia contributory to the Anacostia River; or
    - (2) A flow equivalent to a three hundred percent (300%) increase in flow during a twenty-four (24) hour period;
  - (c) For Rock Creek and tributaries the following shall be considered a high flow:



- (1) A flow which may result due to a rainfall with an average intensity greater than two-tenths of an inch (0.2 in.) per hour for a period of one (1) hour in the portion of the District of Columbia contributory to Rock Creek; or
- (2) A flow equivalent to a three hundred percent (300%) increase in flow during a twenty-four (24) hour period; and
- (d) For other tributaries to the Potomac and Anacostia Rivers a flow equivalent to a five hundred percent (500%) increase in flow during a twenty-four (24) hour period, shall be considered a high flow.

1105.5 Mixing zones may be allowed for point source discharges of pollutants on a case by case basis, where it is demonstrated that allowing a small area impact will not adversely affect the waterbody as a whole. The following conditions shall apply:

- (a) In the nontidal waters the permissible size of the mixing zone shall be determined by the ability of the organisms to pass through the mixing zone and the size of the receiving water body;
- (b) Mixing zones shall be free from discharged substances that will settle to form objectionable deposits; float to form unsightly masses; or produce objectionable color, odor or turbidity;
- (c) A mixing zone, or two (2) or more mixing zones, shall not form a barrier to the movements of aquatic life nor cause significant adverse impact on aquatic life in shallow areas that serve as nursery;
- (d) The water quality within a mixing zone shall be such that the concentration of a substance in the mixing zone does not cause lethality to passing organisms;
- (e) The positioning of mixing zones shall be done in a manner that provides the greatest protection to aquatic life and for the designated uses of the water;
- (f) Within the estuary, the maximum cross-sectional area occupied by a mixing zone shall not exceed ten percent (10%) of the numerical value of the cross-sectional area of the waterway, and the width of the mixing zone shall not occupy more than one third (1/3) of the width of the waterway;
- (g) Within the estuary, mixing zones may move with the prevailing hydraulic and meteorological conditions;
- (h) The numerical standards for Criteria Continuous Concentration (CCC) in §1104.6 must be met at the edge of the mixing zone and therefore the CMC criteria will be met within some portions of the mixing zone; and
- (i) Complete mixing will be assumed within the mixing zone.

1105.6 Any permits issued pursuant to §7 of D.C. Law 5-188 shall be based upon consideration of the designated uses.



- 1105.7 Whenever a new water quality standard based effluent limitation is imposed in a discharge permit, the permittee shall have no more than three (3) years in which to achieve compliance with such limitation, unless it can demonstrate that a longer compliance period is warranted. A compliance schedule shall be included in the permit.

**SOURCE:** Final Rulemaking published at 41 DCR 1075, 1088 (March 4, 1994).

**EDITOR'S NOTE:** Prior to March 4, 1994, the Department of Consumer and Regulatory Affairs published Final Rulemaking at 32 DCR 7690 (December 27, 1985).

## 1106 SITE SPECIFIC STANDARDS

- 1106.1 If requested, the Director may allow site specific study to change the numerical criteria when at least one of the following conditions exist:

- (a) The species at the site are more or less sensitive than those included in the national criteria data set; or
- (b) Physical or chemical characteristics of the site alter the biological availability or toxicity of the chemical.

- 1106.2 If the criteria in §1104.6 are found to be unsuitable for the District waters based on the conditions described in §1106.1, when requested to do so, the Director may adopt site specific criteria for Class C waters, except for mercury and selenium, or for Class D waters, only when site specific study necessitates.

- 1106.3 When requested to do so based on the conditions described in §1106.1, and if warranted, the Director shall allow site specific studies to generate scientific information regarding the following items:

- (a) The water effect ratio for metals specific to the District waters;
- (b) The sensitivities of the aquatic organisms prevalent in the District;
- (c) The toxicity of chemicals to the fish in the District waters and related human health effects; and
- (d) Any other compelling factors which merit consideration for changing of the numerical standards in §1104.6.

- 1106.4 A person or persons planning to conduct a site specific study shall submit a complete plan of study to the Director for approval, and the site specific study shall be carried out only after a written approval is issued by the Director, subject to the requirements set forth in §1106.

- 1106.5 The Director shall provide advance notice to all discharge permittees and applicants for discharge permits prior to the initiation of any site specific study.

- 1106.6 All site specific studies and adoption of site specific criteria shall be subject to the following requirements:

- (a) Once the Director has given approval for the study, it must be concluded in accordance with the approved plan;
- (b) Person or persons conducting a site specific study subject to §1106.3, shall submit to the Director for review and approval all data, analyses, findings, reports and other information as deemed necessary by the Director;
- (c) The Director shall seek review of the findings of the site specific studies and other relevant information by the public, as well as appropriate local and federal government agencies, and shall take into consideration their concerns before adopting any less stringent site specific criterion based on those findings; and
- (d) If the study concludes that a more stringent criterion is needed for Class C or D waters than provided in §1104.6, then the standards shall be modified to reflect the more stringent level of protection.

1106.7 If a study is conducted to determine the Water Effect Ratio (WER) for metals which criteria are in the dissolved form, the WER shall be based on the dissolved fraction of the metals. If the study is conducted to determine the WER for metals which criteria are in the total recoverable form, the WER shall be based on the total recoverable fraction of the metals. If WERs are to be developed at a minimum, the following conditions shall be met unless a deviation or alternate method is approved by the Director:

- (a) If a WER study concludes that an existing criterion is not stringent enough then the criterion shall be made more stringent;
- (b) At least two (2) sensitive indicator species, a fish and at least an invertebrate, shall be used to determine toxicity in laboratory water and water collected from the site;
- (c) The  $LC_{50}$  in the laboratory water must be comparable to the  $LC_{50}$  data developed by EPA;
- (d) Water samples collected from the site shall be representative of critical low flow. A minimum of eight (8) samples per location per season shall be evaluated;
- (e) Samples shall be taken at the edge of the mixing zone unless multiple discharges are involved. At least one sample should be reasonably well mixed with the flow of the receiving water or the sample shall be well outside the regulatory mixing zone;
- (f) Laboratory water shall be the same as the water used by EPA and adjusted for site water characteristics and hardness;
- (g) The trace metal shall be added in the form of a highly soluble inorganic salt;
- (h) The chemical and physical characteristics, both dissolved and total recoverable metal concentrations, hardness, pH, alkalinity, suspended solids,



organic carbon, temperature, and specific metal binding ligands (where known to be important) and any other water quality characteristic that affects bioavailability and toxicity of the water should be monitored during the toxicity tests;

- (i) A water effect ratio which is large or which is based upon highly variable tests may be rejected;
- (j) The water effect ratio shall be the geometric mean of the two (2) species; and
- (k) All chemical, biochemical, biological and other appropriate analyses shall be conducted by EPA approved methods.

1106.8 If a site specific study is conducted to determine the Human Health Criteria and related human health effects, at a minimum, the following information shall be incorporated:

- (a) Bioconcentration factors of the substances in the commonly consumed fish in the District;
- (b) Percent lipids in the commonly consumed fish in the District; and
- (c) Information regarding the per capita consumption by the District citizens of fish caught from the District waters.

1106.9 The determination of §§1106.8 (a) and (b) shall be done by EPA approved methods.

1106.10 The criteria, based on a site specific study and information collected through the study, shall be calculated using relations developed by EPA *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001, issued March, 1991), minus the component for drinking water, as follows:

- (a) For noncarcinogens:

$$\text{NEW CRITERIA} = (\text{RfD} \times \text{WT}) / (\text{FC} \times \text{L} \times \text{FM} \times \text{BCF})$$

Where RfD is the reference dose from the EPA Integrated Risk Information System (IRIS) database, WT is seventy kilograms (70 kgs.), FC is the daily fish consumption by the exposed population in kilograms per day, L is the ratio of lipid fraction of fish tissue consumed to three percent (3%), FM is the food chain multiplier, and BCF is the bioconcentration factor for fish with three percent (3%) lipid; and

- (b) For carcinogens:

$$\text{NEW CRITERIA} = (\text{RL} \times \text{WT}) / (\text{q1}^* \times \text{FC} \times \text{L} \times \text{FM} \times \text{BCF})$$

Where WT, FC, L, FM, and BCF are as stated above; RL is  $10^{-6}$  and  $\text{q1}^*$  is the carcinogenic potency factor from the EPA IRIS database.

1106.11 If the effluent limitation for a metal in a discharge permit is specified as "total recoverable," and the criterion for it in §1104.6 is specified as "dissolved," either of the following two (2) approaches based on EPA Publication *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001, issued March, 1991) may be used, subject to review and approval by the Director:

- (a) The criterion may be used as total recoverable for the purpose of establishing effluent limitations; or
- (b) A site specific ratio between the dissolved and total recoverable metal may be developed by systematic monitoring and analysis of the effluent and the receiving water at the edge of the mixing zone during periods reflective of the environmental conditions based on which the permit is issued. The ratio shall incorporate considerations to avoid toxicity to aquatic organisms from deposition to the sediment outside of the mixing zone. The ratio of dissolved to total recoverable will then be used by the permitting authority to determine the total recoverable effluent limits based on dissolved metal criterion.

1106.12 The Director may establish additional requirements for adopting site specific water quality standards.

SOURCE: Final Rulemaking published at 41 DCR 1075, 1091 (March 4, 1994).

EDITOR'S NOTE: Prior to March 4, 1994, the Department of Consumer and Regulatory Affairs published at Final Rulemaking at 32 DCR 7690 (December 27, 1985).

## 1107 - 1149 [RESERVED]

## 1150 GROUND WATER

1150.1 Sections 1150 through 1158 shall describe the following categories:

- (a) Classes of ground waters within the District;
- (b) Establish criteria to protect the designated uses;
- (c) Establish the concepts of Enforcement Standards and Early Warning Values; and
- (d) Provide ground water monitoring requirements.

1150.2 Ground water in the District is not currently being used as a potable water source; however, where attainable, it shall be protected for beneficial uses, including surface water recharge, drinking water in other jurisdictions, and potential future



use as a raw drinking water source in the District. Ground waters shall be protected from pollution because the lack of this protection might result in the following:

- (a) Large future cleanup costs of contaminated ground water;
- (b) Contaminated ground water becoming a potential health hazard to the public;
- (c) Contaminated ground water mixing with and contaminating adjacent surface waters;
- (d) Contaminated ground water mixing with and contaminating the ground waters of adjacent jurisdictions; or
- (e) Harm to or loss of sensitive flora or fauna.

SOURCE: Final Rulemaking published at 40 DCR 4203 (July 2, 1993); renumbered by Final Rulemaking published at 41 DCR 1075 (March 4, 1994).

## **1151 APPLICABILITY OF GROUND WATER STANDARDS**

- 1151.1 The ground water standards and ground water classifications shall apply to all ground waters of the District.
- 1151.2 Whenever point source ground water pollution occurs, the numerical and enforcement standards of §1109 shall be applied.

SOURCE: Final Rulemaking published at 40 DCR 4203, 4204 (July 2, 1993); renumbered by Final Rulemaking published at 41 DCR 1075 (March 4, 1994).

## **1152 BENEFICIAL USE CLASSES FOR GROUND WATER**

- 1152.1 The following ground waters shall be classified as Class G1 if they are of drinking water quality:
  - (a) Ground waters that are highly vulnerable to contamination;
  - (b) Ground waters in recharge areas of drinking water aquifers of adjacent jurisdictions;
  - (c) Ground waters that are hydrologically connected to surface waters of the District including designated antidegradation segments; and
  - (d) Ground waters that discharge to a sensitive ecological system that supports a unique habitat.
- 1152.2 The following ground waters shall be classified as Class G2:
  - (a) Ground waters that are of drinking water quality but are not classified as G1;

- (b) Ground waters in recharge areas of drinking water aquifers of adjacent jurisdictions but are not drinking water quality;
- (c) Ground waters that are hydrologically connected to surface waters of the District including designated antidegradation segments but are not of drinking water quality; and
- (d) Ground waters that are not of drinking water quality but can be made suitable for drinking water by conventional treatment processes.

1152.3 Class G3 ground waters shall be those that can neither be grouped under Class G1 nor under Class G2.

1152.4 In order to adequately maintain and preserve ground water quality within the District, where land use is affecting or has the potential to affect ground water quality, the Director, Department of Consumer and Regulatory Affairs, shall identify areas that are highly vulnerable to ground water contamination. Class G1, G2, G3 ground water shall then be designated as ground water vulnerable to ground water contamination.

**SOURCE:** Final Rulemaking published at 40 DCR 4203, 4204 (July 2, 1993); renumbered by Final Rulemaking published at 41 DCR 1075 (March 4, 1994).

1153 [RESERVED]

#### 1154 GROUND WATER CLASSIFICATION

1154.1 All ground waters shall be classified as Class G1 until enough information that warrants a different classification is provided to or obtained by the Director and evaluated.

**SOURCE:** Final Rulemaking published at 40 DCR 4203, 4205 (July 2, 1993); renumbered by Final Rulemaking published at 41 DCR 1075 (March 4, 1994).

#### 1155 GROUND WATER STANDARDS

1155.1 For the protection of the designated use of the ground water and the hydrologically connected water bodies, narrative and numerical criteria, enforcement standards and early warning values for each ground water class shall be provided in this section in order to establish upper contaminant levels that shall not be exceeded.

1155.2 The following narrative criteria shall apply to all ground waters of the District:

- (a) All ground waters shall at all places and at all times be free from pollution in the form of oil, carcinogens, toxicants, and other substances in

concentrations which might present a health hazard or render the ground water unusable; and

- (b) All ground waters shall at all places and at all times be free from domestic, industrial, agricultural, or other man-induced non-thermal components of discharges in concentrations which, alone or in combination with other substances or components of discharges:
- (1) Are harmful to plants, animals or other organisms;
  - (2) Are carcinogenic, mutagenic, teratogenic, or toxic in toxic amounts to human beings;
  - (3) Are acutely toxic to biological species of the aquatic community within surface waters affected by the ground water at the point of contact with surface waters;
  - (4) Pose a serious danger to the public health, safety or welfare;
  - (6) Create or constitute a nuisance; or
  - (7) Impair the reasonable and beneficial use of adjacent waters within and outside the District.

1155.3 Numerical criteria for Class G1 ground waters shall be the most restrictive and are as follows:

| Constituent   | Criterion | Early Warning Value |
|---|-----------|---------------------|
| Trace Metals & Inorganics (maximum mg/L unless noted otherwise) |           |                     |
| Primary   |           |                     |
| Arsenic   | 0.05      | 0.01**              |
| Barium  | 1.0       | 0.2**               |
| Cadmium   | 0.005     | 0.002**             |
| Chromium, hexavalent  | 0.1       | 0.01**              |
| Chromium, trivalent   | 0.1       | 0.01**              |
| Cyanide, free   | 0.2       | 0.04**              |
| Fluoride  | 4.0       | 0.4**               |
| Lead  | 0.05      | 0.01**              |
| Mercury   | 0.002     | 0.0005+             |
| Nitrates  | 10.0      | 2.0**               |
| Nitrite   | 1.0       | 0.5*                |
| Selenium  | 0.05      | 0.002**             |
| Silver  | 0.05      | 0.05+               |
| Secondary   |           |                     |
| Turbidity (NTU)   | 5.0       | NA                  |
| Chloride  | 250.0     | 125.0*              |
| Copper  | 1.0       | 0.5*                |



## 1155.3 (Continued)

| Constituent                               | Criterion  | Early Warning Value |
|---|------------|---------------------|
| Secondary (Continued)                     |            |                     |
| Iron                                      | 0.3        | 0.15*               |
| Manganese                                 | 0.05       | 0.025*              |
| Sulfate                                   | 250.0      | 125.0*              |
| Total dissolved solids                    | 500.0      | 250.0*              |
| Zinc                                      | 5.0        | 2.5*                |
| Organics (maximum µg/l)                   |            |                     |
| Benzene                                   | 5.0        | 2.0+                |
| Carbon tetrachloride                      | 5.0        | 1.0+                |
| Dichlorobenzene (para)                    | 75.0       | 2.0+                |
| Dichloroethylene (1,1-)                   | 7.0        | 1.0+                |
| Dichloroethylene (cis-1,2-)               | 70.0       | 1.0+                |
| Dichloroethylene (trans-1,2)              | 100.0      | 1.0+                |
| Endrin                                    | 0.2        | 0.1+                |
| Ethylbenzene                              | 700.0      | 2.0+                |
| Hexachlorocyclohexane (Lindane)           | 4.0        | 0.2+                |
| Methoxychlor                              | 100.0      | 2.0+                |
| 1,1,1-Trichloroethane                     | 200.0      | 5.0+                |
| 1,2-Dichloroethane                        | 5.0        | 0.5+                |
| Tetrachloroethylene                       | 5.0        | 0.5+                |
| Toluene                                   | 1,000.0    | 2.0+                |
| Total Trihalomethanes                     | 100.0      | 0.5+                |
| Toxaphene                                 | 5.0        | 2.0+                |
| Trichloroethylene                         | 5.0        | 1.0+                |
| 2,4-D                                     | 100.0      | 10.0+               |
| 2,4,5-TP Silvex                           | 10.0       | 2.0+                |
| Vinyl chloride                            | 2.0        | 2.0+                |
| Xylenes                                   | 10,000.0   | 5.0+                |
| Radionuclides (maximum activity, pCi/L)   |            |                     |
| Combined Radium-226 & Radium-228          | 5.0        | 1.0**               |
| Gross alpha particle activity             | 15.0       | 3.0**               |
| Gross beta particle activity              | 50.0       | 10.0**              |
| Microbiological (maximum organisms/ml)    |            |                     |
| Fecal Coliform                            | 1.0        | NA                  |
| Acidity (allowable range, standard units) |            |                     |
| pH  | 6.5 to 8.5 | NA                  |

\*\* : Early Warning Value is 20% of criterion.

\* : Early Warning Value is 50% of criterion.

\* : Early Warning Value for synthetic chemicals that have no natural source is at the practical quantitation limit.

NA: Not Applicable.



- 1155.4 For the purposes of §§1150 through 1158 of this chapter, the enforcement standard shall be the value assigned to any contaminant, which if exceeded, may result in the Director initiating enforcement action.
- 1155.5 Except as specified in §1155.6, the enforcement standards shall be established based on the following:
- (a) For Class G1, where a criterion is established, the enforcement standard shall be the criterion if the criterion is not exceeded in the background water quality;
  - (b) For Class G1, if a criterion is established and exceeded in the background water quality, the enforcement standard shall be the background concentration;
  - (c) When a criterion is not established for a Class G1 ground water, the enforcement standard shall be based on the best available scientific knowledge including, but not limited to, the background water quality, the use of U.S. Environmental Protection Agency water quality criteria and Health Advisories, other states water quality criteria, and risk assessment calculations. The value utilized will depend on technological and economic factors;
  - (d) When a specific activity which does or may contaminate ground water is being regulated by the Director and a criterion is not established, the enforcement standard may be established by the Director through, but not limited to, a waste discharge permit or other permit, order or a memorandum of understanding with other regulating agencies; and
  - (e) For a Class G2 or Class G3 ground water, the enforcement standard shall be based on the best available scientific knowledge including, but not limited to, the background water quality, the use of U.S. Environmental Protection Agency water quality criteria and Health Advisories, other states water quality criteria, and risk assessment calculations. The value utilized will depend on the class of ground water, and technological and economic factors.
- 1155.6 A request for variation from the enforcement standards of §1155.5 for any class of ground water can be made to the Director. The request, by the responsible party, shall be based on both the technological and economic analyses. The responsible party shall demonstrate to the satisfaction of the Director that cleanup to the enforcement standard is both technologically and economically infeasible. The request shall propose an alternate cleanup level.
- 1155.7 Early Warning Values ("EWV") shall be established to protect ground waters from contamination and to avoid costly remediation by providing for early detection of increasing contaminant concentrations before the criteria or enforcement standards are exceeded.

- 1155.8 EWV's shall be applicable to facilities or activities with a potential to contaminate ground water and which are required to monitor the impact of their activities on ground water quality.
- 1155.9 Whenever a criterion or an enforcement standard is set above background level, an EWV or trend analysis shall be utilized.
- 1155.10 Early Warning Values shall be determined by one of the following items:
- (a) When the regulated substance is not found in the background water quality or is present in levels lower than the criterion or the enforcement standard then the EWV shall be as follows:
    - (1) Practical quantitation limit for all synthetic constituents for which no natural source exists;
    - (2) Twenty percent (20%) of the criterion or enforcement standard for substances of health concern;
    - (3) Fifty percent (50%) of the criterion or enforcement standard for substances of public welfare concern; or
    - (4) EWV for specific criteria are according to §1155.3; or
  - (b) When the regulated substance is found in the background water quality in a concentration that exceeds the criterion or enforcement standard for that substance, then the EWV shall be set between background and the criterion or enforcement standard in such a way that increasing or decreasing contaminant levels will be detected.
- 1155.11 If the permittee or responsible party desire, a trend analysis in place of fixed values for EWV's may be used. The trend analysis shall use a scientifically sound and valid statistical procedure appropriate to the discharge and shall provide a ninety-nine percent (99%) level of confidence. The design and implementation of the trend analysis shall be the responsibility of the permittee and shall be approved by the Director. Response levels shall be defined for each trend analysis but at a minimum shall include those levels as defined in §1155.3.
- 1155.12 It shall not be considered a violation of §§1150 through 1158 of this chapter when pollutants are detected in concentrations exceeding an EWV unless the following occurs:
- (a) The pollutant concentrations exceed the numerical criterion of §1155.3 and the enforcement standards of §1155.5; and
  - (b) There is failure to inform the Director or respond as required in §1155.13.
- 1155.13 The following procedures shall apply when a substance(s) is detected at the point of compliance and an EWV is attained or exceeded, or a net change in concentration is detected through an approved trend analysis:



- (a) The permittee or responsible party shall notify the Director, in writing, within thirty (30) days; and
- (b) Upon receiving notification, the Director may require the permittee or responsible party to perform one of the following:
  - (1) No action;
  - (2) Resample wells to verify results;
  - (3) Revise the monitoring plan including increased monitoring; or
  - (4) Complete a report documenting the extent of contamination, contamination sources and discuss alternative methods of operation.

SOURCE: Final Rulemaking published at 40 DCR 4203, 4205 (July 2, 1993); renumbered by Final Rulemaking published at 41 DCR 1075 (March 4, 1994).

**1156 [RESERVED]**

**1157 GROUND WATER MONITORING FOR POTENTIAL CONTAMINATION**

- 1157.1 Except as specified in §1157.2, the monitoring requirements shall apply to the owners and operators of landfills, solid waste piles (other than piles of gravel, resident soils and other such material), land spreading disposal facilities, surface impoundments of wastes and solid waste discharge facilities.
- 1157.2 The monitoring requirements shall not pertain to other programs and activities of the Department of Consumer and Regulatory Affairs already covered by a promulgated rule that has specific monitoring requirements including the federal discharge permits program and Hazardous Waste Management, 20 DCMR 40.
- 1157.3 All permitted facilities requiring ground water monitoring shall submit for approval, a ground water monitoring program to determine representative background water quality and the quality of the water passing the point of compliance.
- 1157.4 Background monitoring points shall be located at points where potential sources of ground water contamination from the permitted site will not affect ground water quality.
- 1157.5 The monitoring program shall include, but not be limited to, the uppermost aquifer and any aquifer in the point of compliance that is hydrologically connected to the surface waters of the District and antidegradation segments and drinking water aquifers of adjacent jurisdictions. At a minimum, the monitoring program shall include the following:



- (a) One (1) upgradient well and three (3) downgradient wells installed at appropriate locations and depth to yield ground water samples from the uppermost aquifer and all hydrologically connected aquifers below the active portion of the facility;
- (b) All monitoring wells shall be cased to maintain the integrity of the monitoring well bore hole. The casing shall allow collection of representative water samples. The well shall be constructed in such a manner as to prevent contamination of the samples, the sampled strata, water bearing aquifers and prevent contamination between aquifers;
- (c) A sampling and analysis plan;
- (d) A quality assurance and quality control plan;
- (e) A quarterly sampling frequency for the first two (2) years. If early warning values are not reached or a trend analysis shows no significant contamination, sampling frequency will either be reduced or discontinued on approval of the Director; and
- (f) Submittal of an annual report of monitoring results not withstanding requirements pursuant to §1155.12.

1157.6 Monitoring may be required for nonpermitted point and non-point source activities with a potential to contaminate ground water.

SOURCE: Final Rulemaking published at 40 DCR 4203, 4210 (July 2, 1993); renumbered by Final Rulemaking published at 41 DCR 1075 (March 4, 1994).

## 1158 ENFORCEMENT

- 1158.1 This chapter shall be enforced pursuant to the Water Pollution Control Act of 1984, D.C Law 5-188, as amended.
- 1158.2 All laboratory examinations of ground water samples collected to determine compliance with these water quality standards shall be performed in accordance with procedures approved by the U.S. Environmental Protection Agency.
- 1158.3 All field analyses and measurements of ground water to determine compliance with these water quality standards shall be conducted in accordance with standard procedures specified by the Director.
- 1158.4 Nothing in these water quality standards shall be interpreted as alleviating any discharger from meeting more stringent water quality standards of downgradient jurisdictions.
- 1158.5 Primary contact recreation shall be prohibited in the Potomac and Anacostia Rivers and Rock Creek until such time as the standards in §1101.2 for Class A beneficial use are consistently maintained.

SOURCE: Final Rulemaking published at 40 DCR 4203, 4210 (July 2, 1993); and renumbered by Final Rulemaking published at 41 DCR 1075 (March 4, 1994).

**1199 DEFINITIONS**

1199.1 When used in this chapter, the words and phrases shall have the meanings ascribed:

**Acute toxicity** - the concentration of a substance which is lethal to fifty percent (50%) of the test organisms within ninety-six (96) hours, also referred to as the  $LC_{50}$ .

**Ambient** - those conditions existing before or upstream of a source or incidence of pollution.  
(41 DCR 1095)

**Aquifer** - a geologic formation, group of formations, or part of a formation that is sufficiently permeable to yield economically significant quantities of water to wells and springs. (40 DCR 4212)

**Background water quality** - the levels of chemical, physical, biological, and radiological constituents or parameters in the ground water upgradient of a facility, practice, or activity and which have not been affected by that facility, practice, or activity. (40 DCR 4212)

**Best management practices** - one or several practices found to be the most effective and practical means of preventing or reducing point and non-point source pollution to levels that are compatible with water quality goals. (41 DCR 1095)

**CCC or Criteria Continuous Concentration** - the highest concentration of a pollutant to which aquatic life can be exposed for an extended period of time (four-day average) without deleterious effects at a frequency that should not exceed more than once every three (3) years. (41 DCR 1095)

**CMC or Criteria maximum concentration** - the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time (one hour average) without deleterious effects at a frequency that should not exceed more than once every three (3) years. (41 DCR 1095)

**Contamination** - an impairment of water quality by biological, chemical, physical, or radiological materials which lowers the water quality to a degree that creates a potential hazard to the environment or public health or interferes with a designated use. (41 DCR 1095)

**Criteria** - any of the group of physical, chemical, biological, and radiological water quality parameters and the associated numerical concentrations or levels which compose the numerical standards of the water quality standards and which define a component of the quality of the water needed for a designated use. (41 DCR 1095)

**Current use** - the use which is generally and usually met in the waterbody at the present time in spite of the numeric criteria for that use not being met sometimes. (41 DCR 1095)

**Department** - the Department of Consumer and Regulatory Affairs, or a subsequent agency delegated to implement the District of Columbia Water Pollution Control Act (D.C. Law 5-188) and regulations under the Act. (41 DCR 1095)

**Designated use** - the use specified for the waterbody in the water quality standards whether or not it is being attained. (41 DCR 1095)



**Director** - the Director of the Department of Consumer and Regulatory Affairs, or his or her designee. (41 DCR 1095)

**District** - the District of Columbia. (41 DCR 1095)

**EPA** - U. S. Environmental Protection Agency. (41 DCR 1095)

**Early warning value** - a concentration which is a percentage of or practical quantitation limit for a ground water quality criterion or enforcement standard. (40 DCR 4212)

**Enforcement standard** - the value assigned to a contaminant for the purpose of regulating an activity and may be the same as the criterion for that contaminant. (40 DCR 4212)

**Existing use** - the use actually attained in the waterbody on or after November 28, 1975. (41 DCR 1095)

**Ground water** - underground water, but excludes water in pipes, tanks, and other containers created or set up by people. (40 DCR 4212)

**Harmonic mean flow** - the number of daily flow measurements divided by the sum of the reciprocals of the flows. That is, it is the reciprocal of the mean of the reciprocals. (41 DCR 1095)

**High quality waters** - waters that have quality which is better than needed to protect fishable/swimmable streams. (41 DCR 1095)

**Intermittent stream** - a water course which has no flow for a period of seven (7) consecutive days on a frequency of at least once a year.

**LC<sub>50</sub> or lethal concentration** - the numerical limit or concentration of a test material mixed in water, which is lethal to fifty percent (50%) of the aquatic organisms exposed to the test material for a period of ninety-six (96) hours. (41 DCR 1095)

**Landspreading disposal facility** - a facility that applies sludge or other solid wastes onto the land or incorporates solid waste in the soil surface at greater than vegetative utilization and soil conditioners/immobilization rates. (40 DCR 4212)

**Landfill** - a disposal facility or part of a facility at which solid waste is permanently placed in or on land and which is not a landspreading facility. (40 DCR 4212)

**Loading** - the total quantity in a given period of time, e.g., pounds of a pollutant/day. (41 DCR 1095)

**Mixing zone** - a limited area or a volume of water where initial dilution of a discharge takes place; and where numerical water quality criteria can be exceeded but acute toxic conditions are prevented from occurring. (41 DCR 1095)

**Narrative criteria** - a condition that should not be attained in a specific medium to maintain a given designated use and is generally expressed in a "free from" format. (41 DCR 1095)



**Nonpoint source** - any source from which pollutants are or may be discharged other than a point source. (41 DCR 1095)

**Numerical criteria** - the maximum level a contaminant shall not exceed, or the minimum level of a constituent that shall be attained, or the acceptable range of a parameter in water that shall be attained to maintain a given designated use. (41 DCR 1095)

**Permitted** - an activity, facility or entity authorized through a department permit to treat, store, or dispose of materials or wastes. (41 DCR 1095)

**Point of compliance** - the point or points where the water quality enforcement standard or criterion must not be exceeded.

**Point source** - any discrete source of quantifiable pollutants, including, but not limited to a municipal treatment facility discharge, residential, commercial or industrial waste discharge or a combined sewer overflow; or any discernible, confined and discrete conveyance including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, or concentrated animal feeding operation from which contaminants are or may be discharged. (41 DCR 1095)

**Pollution** - the man-made or man-induced alteration of the chemical, physical, biological, or radiological integrity of water. (41 DCR 1095)

**Pollutant** - any substance which may alter or interfere with the restoration or maintenance of the chemical, physical, radiological, or biological integrity of the waters of the District; or any dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions chemical wastes, hazardous wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, oil, gasoline and related petroleum products, and industrial, municipal, and agricultural wastes. (41 DCR 1095)

**Practical quantitation limit** - the lowest concentration of a substance that generally can be determined by qualified laboratories within specified limits of precision and accuracy under routine laboratory operating conditions in the matrix of concern.

**Primary contact recreation** - those water contact sports or activities which result in frequent whole body immersion or involve significant risks of ingestion of the water. (41 DCR 1095)

**Remedial action** - any immediate or long term response to a pollution occurrence including cleanup, restoration, mitigation, and any other action approved or required by the Director. (40 DCR 4212)

**Responsible party** - any person who has caused or is causing pollution or has created or is creating a condition from which pollution is likely to occur. (40 DCR 4212)

**Secondary contact recreation** - those water contact sports or activities which seldom result in whole body immersion or do not involve significant risks of ingestion of the water. (41 DCR 1095)

**Solid waste** - all putrescible and non-putrescible solid and semisolid wastes, including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, demolition and construction wastes, abandoned vehicles or parts thereof, and discarded commodities. This includes all

liquid, solid and semisolid, materials which are not the primary products of public, private, industrial or commercial mining, and agricultural operations. (41 DCR 1095)

**Standards** - those regulations, in the form of numerical, narrative, or enforcement standards which specify a level of quality of the waters of the District necessary to sustain the designated uses. (41 DCR 1095)

**Surface impoundment** - a facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), and which is designed to hold an accumulation of liquids or sludge. (40 DCR 4212)

**Surface waters** - all rivers, lakes, ponds, wetlands, inland waters, streams, and all other water and water courses within the jurisdiction of the District of Columbia. (41 DCR 1095)

**Trend analysis** - a statistical methodology used to detect net changes or trends in contaminant levels over time. (40 DCR 4212)

**Water Effect Ratio** - the ratio of site water  $LC_{50}$  value to the laboratory water  $LC_{50}$  value. (41 DCR 1095)

**Waters of the District** - flowing and still bodies of water, whether artificial or natural, whether underground or on land, so long as in the District of Columbia, but excludes water on private property prevented from reaching underground or land water courses, and also excludes water in closed collection or distribution systems. (41 DCR 1095)

**Wetland** - a marsh, swamp, bog or other area periodically inundated by tides or having saturated soil conditions for prolonged periods of time and capable of supporting aquatic vegetation. (41 DCR 1095)

**SOURCE:** Final Rulemaking published at 32 DCR 7690, 7597 (December 27, 1985); as amended by Final Rulemaking published at 40 DCR 4212 (July 2, 1993); and by Final Rulemaking publishing by 41 DCR 1075, 1095 (March 4, 1994).